

Remedial Planning Activities at Selected Uncontrolled Hazardous Substance Disposal Sites in Region I



Environmental Protection Agency Region I

ARCS Work Assignment No. 09-1JZZ

Crownmark Corporation Lincoln, RI RID050325026 TDD No. 9108-134-ATP

Preliminary Assessment Final Report

August 1992

TRC Companies, Inc.

TAMS Consultants, Inc.
PEI Associates, Inc.
Jordan Communications, Inc.

PRELIMINARY ASSESSMENT CROWNMARK CORPORATION LINCOLN, RHODE ISLAND

RID050325026

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY

Region I

90 Canal Street

Boston, Massachusetts 02203-2211

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INTRODUCTION

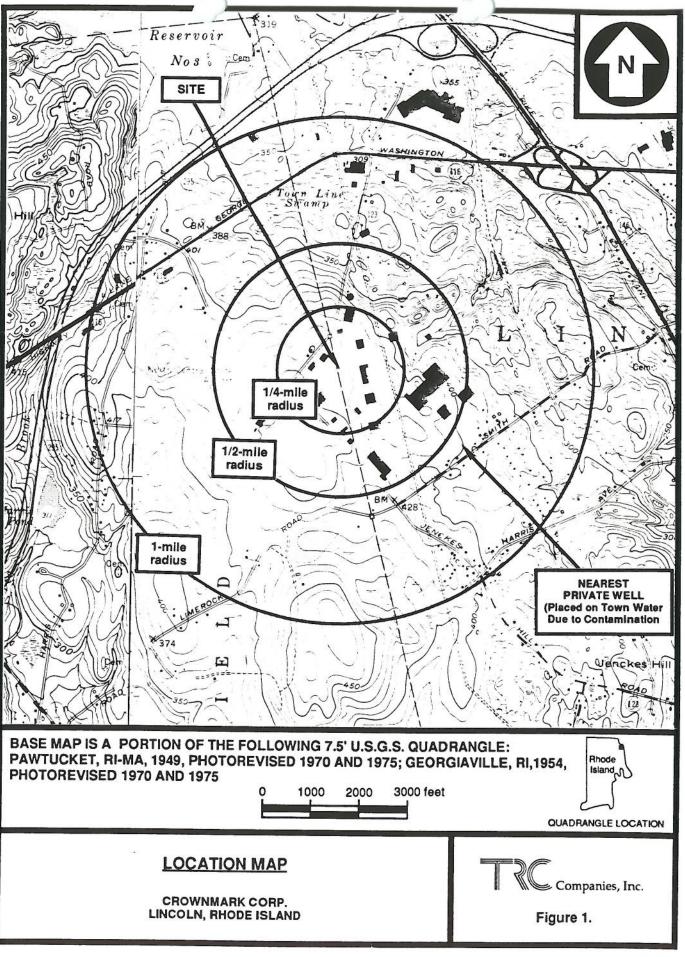
The TRC Companies, Inc. Alternative Remedial Contract Strategy (ARCS/Region I) team was requested by the Region I U.S. Environmental Protection Agency (EPA) Waste Management Division to perform a Preliminary Assessment (PA) of the Crownmark Corporation located in Lincoln, Rhode Island. This PA was completed under Work Assignment No 09-1JZZ and Technical Directive Document (TDD) No. 9108-134-ATP issued to TRC Companies on August 21, 1991.

Background information used in the generation of this report was obtained through file searches conducted at the Rhode Island Department of Environmental Management (RI DEM) and EPA, telephone interviews with town officials and individuals knowledgeable of the property history and characteristics, and conversations with other Federal, State and local agencies. Information was also collected during the ARCS/Region I on-site reconnaissance which was conducted on February 20, 1992.

This PA follows guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, commonly referred to as Superfund. However, they do not necessarily fulfill the requirements of other EPA regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other Federal, State or local regulations. Preliminary Assessments are intended to provide an initial screening of sites to facilitate EPA's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

SITE DESCRIPTION

The Crownmark Corporation (Lincoln Assessors Map, Plat 28; Lot 67) is located at One Crownmark Drive in the North Central Industrial Park, Lincoln, Rhode Island (Figure 1, Figure 2 and Table 1). The facility entrance is located at Latitude 41° 55′ 22.6″ N; Longitude 71° 28′ 58.0″ W (Balogh, 1992a).



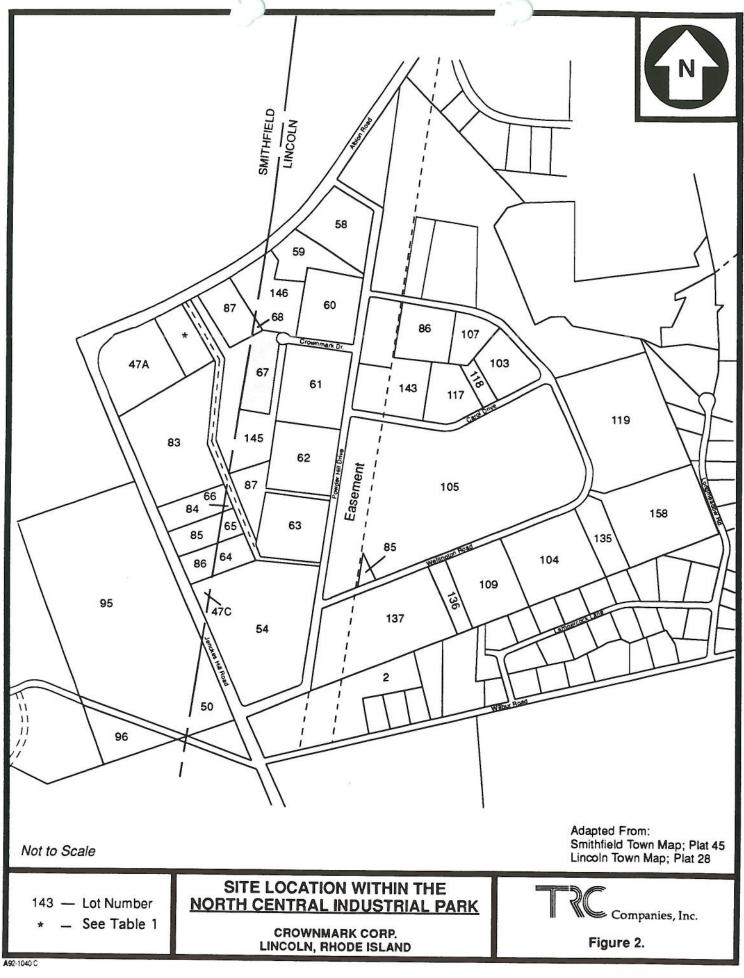


TABLE 1. NORTH CENTRAL INDUSTRIAL PARK DIRECTORY

Property Lot Numbers	Occupant/Operator
2, 137	Olin Hunt Specialty Products
47A	RI Air National Guard
*	U.S. Army Reserve Maintenance Facility ¹
$50, 95^2, 96^2$	Speidel Company/Gorham Company
54, 47C ²	Avnet Diecasting (Formerly Lincoln Dimentional Tubing)
58	Stackbin Corp.
59	Red Hed Manufacturing Co./Lawton Manufacturing Co.
60	Dot Packaging Group-TCS, Inc.
61	Second Chase Venture (Formerly Globe Distributing)
62	H & A Kaufman Realty Co.
63	Paramount Press, Inc.
$64, 86^2$	National Glass Co.
$65, 85^2$	Everett Products, Inc.
$66, 84^2$	Coating Systems, Inc.
67	Crownmark Corporation
$68, 87^2$	Crossley Machine & Tool Co./Jaco Devices
83 ²	Sandvik Co./Madison Industries
85	Blackstone Valley Electrical Company
86, 107	Premier Thread Company
87	Goodyear Steel Container (formerly Gersham
	Fabricating Co.)
103, 118	Moeller Manufacturing
104, 135	International Data Sciences, Inc.
105	Carol Cable Co.
109, 136	Technical Materials
117	Vennerbeck Stern-Leach
119	Vistawall Architecture Products (Formerly Hedison
	Manufacturing)
143	Tru-Kay Manufacturing, Inc.
145	Engineered Wall Systems
146	Flink Ink Corp.
158	Lot 158

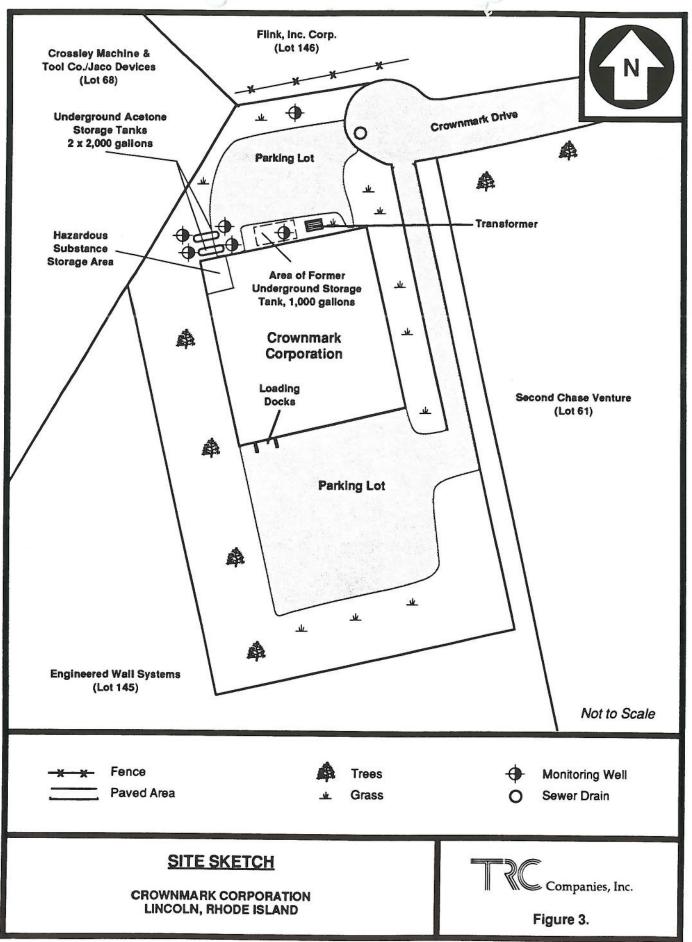
¹No Lot Number was available for this property
²Lot Number from the Smithfield Town Map. All remaining lot numbers are from the Lincoln Town Map.

The Crownmark Corporation decorates and assembles miscellaneous novelty items. The processes used at the facility include spray-painting, stripping, and assembly of items including key chains and other gift novelties (TRCC, 1992a). The Crownmark Corporation has been located at the facility since 1977 (TRCC, 1992a).

The facility consists of one building located on approximately 3.5 acres of land (Figure 3). The total area of the building is approximately 40,000 square feet (TRCC, 1992a). The majority of the property not occupied by the building is paved (TRCC, 1992a). The facility is located on land that gently slopes northeastward toward Second Chase Venture (Lot 61) (USGS, 1975a). The Crownmark Corporation property is bordered by Second Chase Venture (Lot 61) to the east, Engineered Wall Systems (Lot 145) to the south, Sandvik Co./Madison Industries (Lot 83) to the west, Crossley Machine & Tool Co./Jaco Devices (Lot 68) to the northwest and Flink Inc. Corp. (Lot 146) to the north.

The majority of the property not occupied by the building is paved (TRCC, 1992a). Two underground acetone storage tanks and a non-PCB containing transformer are located along the outside of the northern side of the building (TRCC, 1992a). Four monitoring wells were observed adjacent to the underground tanks (TRCC, 1992a). A fifth well was observed directly adjacent to the northern side of the building and a sixth well was observed adjacent to the northern parking lot (TRCC, 1992a). There is a fence along the northern boundary of the facility (TRCC, 1992a).

The Crownmark Corporation property is located within the North Central Industrial Park, which covers an area of approximately 248 acres, of which approximately 227 acres are located in the Town of Lincoln, Rhode Island and 21 acres are located in the town of Smithfield, Rhode Island (NUS, 1991). The North Central Industrial Park is comprised of 29 individual properties. It is bordered to the west by the North Central Airport and to the north by the New England Way Industrial Park. Residential neighborhoods are located along the eastern and southern boundaries of the industrial park. The nearest residences are located slightly greater than 0.5 miles to the southeast of the facility and have private wells that have been shut down due to contamination (TRCC, 1992a; RI DEM, 1982).



SITE ACTIVITY/HISTORY

According to the records at the Town of Lincoln Tax Assessor's Office, the Crownmark Corporation purchased the property in 1977 (Balogh, 1992b). Prior to the Crownmark Corporation, the property was owned by the Lawn Terrace Group (1973-1977), J. C. Marshall & Sons, Inc. (1971-1973), and the 2nd Area Pawtucket Industrial Foundation, Inc. (1971). At present, the lot is zoned MG-0.5: Limited manufacturing. No information regarding prior uses of the property was available. Reportedly, the property was undeveloped when purchased by Crownmark Corporation in March, 1977 (TRCC, 1992a).

Processes used at the Crownmark Corporation include the spray painting, stripping, and assembly of miscellaneous novelty items, and the cleaning of machines, parts and molds (TRCC, 1992a). Product acetone is stored in the two 2,000 gallon underground storage tanks, which are kept approximately half-full. These tanks are tested regularly (TRCC, 1992a). The wastes generated at the facility are acetone and methylene chloride (TRCC, 1992a). All wastes are stored in 55-gallon drums, kept in a waste storage area in the northeastern corner of the building, and are removed monthly from the facility for incineration (Figure 3; TRCC, 1992a; John, 1987a; John, 1987b). For the year of 1991, Crownmark Corporation manifested a total of 1375 gallons waste acetone and 110 gallons of waste methylene chloride (Balogh, 1992c). At present, Safety-Kleen handles waste removal and incineration. Ashland Chemical Co. was used until June, 1991 to remove and incinerate the waste acetone and methylene chloride (TRCC, 1992a).

The Crownmark Corporation is a RCRA-regulated generator of hazardous wastes (RID050325026) (Balogh, 1992d; John, 1987a). The Facility provided U.S. EPA with a Notification of Hazardous Waste Activity on August 8, 1980 and a Hazardous Waste Permit Application and General Information Form on November 18, 1980 (Balogh, 1992d). A file review from the Rhode Island Department of Environmental Management (RI DEM) and US EPA found no documented onsite releases of hazardous waste. A historical summary is provided below.

- In 1981 and 1982, an investigation of ground water contamination in the area of the North Central Industrial Park was conducted by the RI DEM (RI DEM, 1982). This investigation was conducted after organic chemical contaminants were found in 74 private wells during an Emergency Well Testing Program initiated in 1980 by the Rhode Island Department of Health. In 1981, through efforts by the Town of Lincoln, public water lines were installed throughout the affected area, making public water available to all of the residences having contaminated wells (RI DEM, 1982).
- In May 1989, a 1,000 gallon underground storage tank, used to store waste acetone was removed from the area adjacent to the northern side of the building (TRCC, 1992a). Upon removal, it was discovered that the tank was full of hardened paint pigments (Kiley, 1991). The tank did not appear to be rusted and the area of excavation did not appear to be contaminated (Kiley, 1991). A certificate of closure was subsequently issued to Crownmark Corporation by the RI DEM (RI DEM, 1989). At present, a monitoring well appears to penetrate this area.
- In 1990, ground water sampling was conducted by ChemCycle Corporation at the Second Chase Ventures property (Lot 61) directly east of Crownmark Corporation. This report was prepared for M & J Wilkow, Ltd., Chicago, IL. Analytical results revealed the presence of acetone and methylene chloride in the ground water at the Second Chase Venture property (NUS, 1991). In addition, ethylbenzene, total xylenes and toluene were detected above method detection limits in one of the monitoring wells which was located near a reported former underground storage tank on the Second Chase Venture property (ChemCycle, 1990).
- A soil and ground water analysis was conducted in 1991 at the Crownmark Corporation facility by E.R. Pickett Company, Inc (TRCC, 1992a). It is unclear who this report was prepared for. Five soil samples from various depths down to twelve feet and one ground water sample were collected. The samples were collected at the monitoring well locations indicated in Figure 3 and were analyzed for acetone by Environmental Science Services. Acetone was not detected above the method detection limit of 10 μg/kg in any of the samples collected at the Crownmark Corporation property (Environmental Science Services, 1991).
- In July 1991, NUS Corporation completed a Site Discovery Report for EPA at Crownmark Corporation (NUS, 1991).

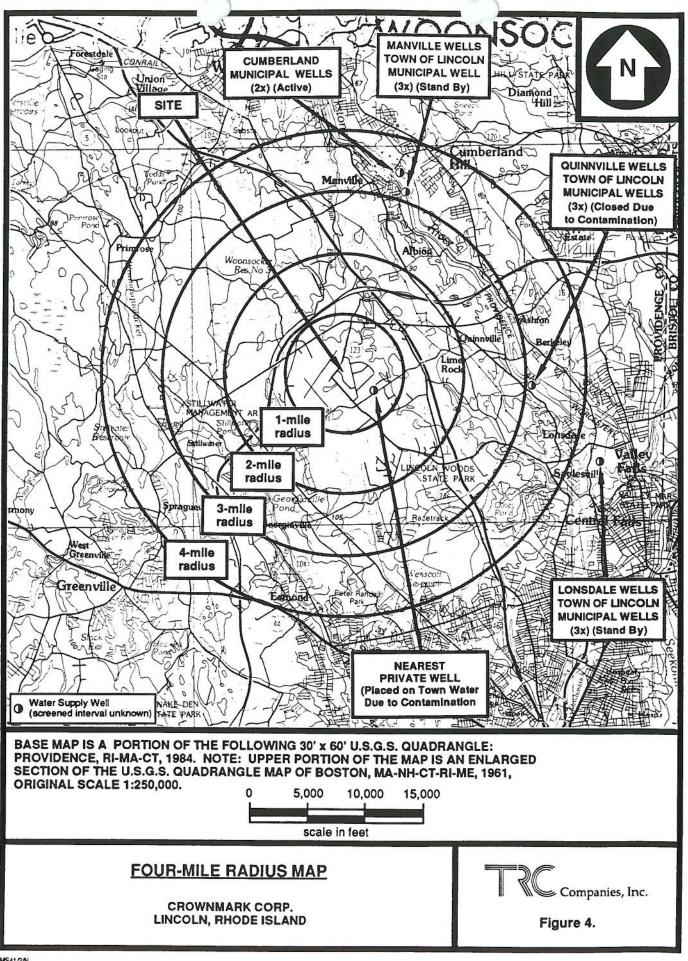
ENVIRONMENTAL SETTING

The Crownmark Corporation is situated in the North Central Industrial Park, which is located in a rural area. The soil at the Crownmark Corporation property is classified as: Sutton fine sandy loam, 3 to 8 percent slopes; Ridgebury, Whitman, and Leicester extremely stony fine

sandy loams; and Udorthents - Urban Land Complex (USDA, 1981). These soils are listed as moderately acidic. The surficial geology has been mapped as Quaternary Ground Moraine and is described as a "till of at least two types: one is loose, sandy, and generally light gray with a thin oxidation zone; and the other is compact, slightly indurated, and brownish" (USGS, 1949a). The bedrock geology is mapped as the Esmond Granite and is described as a "light-gray, pink, and flesh-colored medium-to coarse-grained slightly gneissic granite containing microperthite (30 to 45 percent), albite (20 to 30 percent), quartz (15 to 45 percent), and biotite (1 to 7 percent)" (USGS, 1949b). Maps and well records of the area indicate that bedrock depths may range from 5 to 25 feet (RI DEM, 1982).

Ground water beneath the site is classified as GB (Balogh, 1992e). Ground water in this classification is defined as that which is located within highly urbanized areas of industrial activity where public water supply is available and where the ground water may or may not be suitable for direct human consumption due to waste discharges, spills or leaks of chemicals, land impacts, etc. (Balogh, 1992e). During the 1982 study conducted by the RI DEM, ground water flow through the unconsolidated strata in the North Central Industrial Park was determined to be in an east to east-southeast direction (RI DEM, 1982). Depth to ground water at the property is reported to be 74 inches below the ground surface (Pickett, 1991).

Ground water use within a four-mile radius of the Crownmark Corporation property consists of one public well cluster in Cumberland, and a number of private wells dispersed throughout Lincoln (population 18,045), Smithfield (population 19,163), North Smithfield (population 10,497), Cumberland (population 29,038), and North Providence (population 32,090) (USDC, 1991). Figure 4 identifies the location of the Cumberland well cluster, which is approximately 3.5 miles north-northeast of the Crownmark Corporation property (USGS, 1975a). Cumberland's water supply system serves approximately 27,006 residents (approximately 93 percent of the total population) (Deline, 1992b; USDC, 1991; RIDA, 1988). This public well cluster serves approximately 6,320 people (approximately 23.4 percent of the total number of residents served by the Cumberland public water supply system) (Deline, 1992b; USDC, 1991; RIDA, 1988). Cumberland receives the remainder of



MS41/2/N

its water supply from two other well clusters which are located greater than four miles from the Crownmark Corporation property (Deline, 1992b; USGS, 1975a; USGS, 1970b).

The nearest private well to the Crownmark Corporation property is believed to be located on a residential property on Lampercock Lane, approximately 2,800 feet southeast of the site (see Figure 1). Use of this well was discontinued in 1981 after a sampling event conducted in December 1980 indicated the presence of organic contaminants. The location of the closest private well currently in use was not determined.

The estimated distribution of the population utilizing private wells for their water supply within a four-mile radius of the Crownmark Corporation property is summarized in Table 2. The number of private well users within a one mile radius of Crownmark Corporation was determined based on the RI DEM Report (RI DEM, 1982; Arnold, 1992a; Arnold, 1992b). The rationale used in determining the distribution for the remaining distance rings is presented in the following discussion.

The Town of Lincoln's public water system is available in all areas of the town and is capable of serving all residences who desire to be connected to the public water supply (Lincoln, 1991). However, private wells remain the source of water for approximately 13 percent of the population (Lincoln, 1991; RIDA, 1988). The public water system extends to all areas of Lincoln, and those areas served by the public system and those served by private wells are not clearly delineated (Lincoln, 1991). Therefore, for the purpose of determining the population utilizing private wells for their water supply, it is assumed that the distribution of residences with private wells is uniform throughout the Town of Lincoln.

Residences located in the southeastern areas of North Smithfield along the borders with Smithfield and Lincoln are generally served by private wells (Deline, 1992a). Therefore, it is assumed that all residences located in this area are served by private wells, even though overall 67 percent of North Smithfield residents are served by private wells (RIDA, 1988).

TABLE 2. ESTIMATED PRIVATE AND PUBLIC WELL USE WITHIN A FOUR-MILE RADIUS OF CROWNMARK CORPORATION

Distance Ring (miles)	Town	Private Well Users	Public Well Users	Total
0.00-0.25	Lincoln	0		
	Smithfield	2		2
0.25-0.50	Lincoln	69		
	Smithfield	0		69
0.50-1.00	Lincoln	119		
	Smithfield	22		141
1.00-2.00	Lincoln	117		
	Smithfield	47		
	N. Smithfield	22		186
2.00-3.00	Lincoln	242		
	Smithfield	399		
	N. Smithfield	455		
	Cumberland	18		1,114
3.00-4.00	Lincoln	460		
	Smithfield	620		
	North Providence	0		
	N. Smithfield	422		
	Cumberland	232	6,320	8,054
TOTAL	γ		la:	9,566

Sources: Balogh, 1992f; Balogh, 1992k; RIDA, 1988; USDC, 1991

In Smithfield, approximately 24 percent of the population is served by private wells (RIDA, 1988). Similar to Lincoln, there is no clear definition between those areas served by the public water system and those that are not and it is assumed that the distribution of residences with private wells is uniform throughout the Town of Smithfield (Balogh, 1992f, Balogh, 1992g; Balogh, 1992h; Balogh, 1992i; RIDA, 1988).

Approximately 7 percent of the population of Cumberland and 0 percent of the population of North Providence also use private wells for their water supply (RIDA, 1988). Again, in the town of Cumberland, those areas predominantly served by private wells are not easily distinguished from those that are served by the public water system and therefore, it is assumed that the distribution of residences with private wells is uniform throughout the town (Balogh, 1992f; Balogh, 1992i; Deline, 1992c).

The source of the public water for the towns of Lincoln, Smithfield, and North Providence is the Scituate Reservoir, which does not lie along the 15-mile downstream pathway from the probable point of entry (PPE) to surface water for runoff from the Crownmark Corporation property (Balogh, 1992; Balogh, 1992g; Balogh, 1992h; Balogh, 1992i; Balogh, 1992j; Deline, 1992d; USGS, 1975a; USGS, 1970a; TRCC, 1992a).

The total number of people served by private wells within a four-mile radius of the Crownmark Corporation property is estimated to be 3,246 (Balogh, 1992k; RIDA, 1988). The distribution of residents utilizing private wells is summarized in Table 2. The total number of residents served by ground water sources drawn within a four-mile radius of the Crownmark Corporation property is approximately 9,566 (Balogh, 1992k; RIDA, 1988).

The Town of Lincoln has six public wells located within four miles of the site. Three of these wells (Quinville Wells) have been closed due to contamination from an unidentified source and three (Manville Wells) have been placed on standby (TRCC, 1992a).

The Crownmark Corporation facility is located on land that gently slopes northeastward toward Crownmark Drive (USGS, 1975a).

The North Central Industrial Park is located within the Narragansett Bay Drainage Basin (USDA, 1981). Runoff from the Crownmark Corporation property collects in two west to east oriented swales located along the northern and southern property boundaries. Runoff from the swales drains into a sewer drain in Crownmark Drive (TRCC, 1992a). A part of the runoff may escape the swales and cross the road to the adjacent properties. The sewer drain is part of the municipal system that services the North Central Industrial Park and appears to drain into an unnamed stream that flows one-half mile northeast from the site to a swampy area that subsequently feeds the Moshassuck River (Balogh, 1992m; TRCC, 1992b; RI DEM, 1982; USGS, 1975a). Surface water flows along the Moshassuck River to where it enters Butterfly Pond approximately 3.0 miles from the site. From Butterfly Pond, water flows to Barney Pond approximately 3.9 miles along the pathway from the site. From Barney Pond, surface water flows southeast to the adjacent Bleachery Pond (USGS, 1975a). From Bleachery Pond, surface water continues along the Moshassuck River in a southerly direction through the cities of Pawtucket and Providence and ultimately drains into the Providence Harbor and Providence River, approximately 10.5 miles along the pathway from the site (USGS, 1970a). The terminus of the 15 mile surface water pathway is Sabin Point (Balogh, 1992m). The Moshassuck River contains several species of fresh water fish, including trout, that may be harvested by sport fishermen, and is considered an active fishery (Balogh, 1992o). No drinking water supply intakes were identified along the 15-mile downstream pathway from Crownmark Corporation (Balogh, 1992g; Balogh, 1992h; Balogh, 1992i; Balogh, 1992j; Balogh, 1992m; USGS, 1970a; USGS, 1975a).

The area surrounding the North Central Industrial Park is not a critical habitat for federally designated endangered or threatened species, nor are federally endangered species believed to presently live or are predicted to live in the area. It is, however, an area inhabited by state endangered or threatened species and contains Natural Areas (Lime Rock Preserve) and wetlands (Balogh, 1992o). Additionally, the Lincoln Woods State Park is within four miles of the Crownmark Corporation property (Figure 4; USGS, 1975a). No information was available about designated areas of wellhead protection located within four miles of Crownmark Corporation (Balogh, 1992e). Road signs posted along route 116, however, indicate that the area around the North Central Industrial Park is a watershed area.

Approximately 50 workers are employed at the Crownmark Corporation facility. There are no residents living on or within 200 feet (TRCC, 1992a). Based on observations from driving through the industrial park and surrounding area, as well as indications from the USGS topographic map, there are no schools or day care centers located within 200 feet (TRCC, 1992d; USGS, 1975a). Table 3 summarizes the population residing within four miles of the Crownmark Corporation.

According to the Flood Insurance Rate Map for the Town of Lincoln, Rhode Island, the Crownmark Corporation site is located in a flood zone area classified as Zone C (FEMA, 1982a). Areas classified as Zone C are defined by the Federal Emergency Management Agency as those of minimal flooding which are above the limits of the 100-year to 500-year flood plain (Balogh, 1992l, FEMA, 1982b).

SUMMARY

The Crownmark Corporation has been operating at its current location since 1977. The company decorates and assembles miscellaneous gift items. The facility consists of one building on approximately 3.5 acres of land. EPA and RI DEM file information reveal that the ground water in an adjacent property (Second Chase Venture) has been determined to contain acetone and methylene chloride. However, five soil samples and one ground water sample were collected from the Crownmark Corporation property and were found to contain no levels of acetone above the method detection limit of 10 µg/kg. The Crownmark Corporation is a RCRA-regulated generator of hazardous wastes (RID050325026). Two underground storage tanks are used to store product acetone. A third underground storage tank was removed in 1989. These tanks are tested regularly.

The facility is located in the North Central Industrial Park, Lincoln, Rhode Island. The area surrounding the industrial park is rural and is used for a combination of industrial, commercial, and residential purposes. Many private wells were discontinued as a result of ground water contamination, however, supplied water is available. Most of the population

TABLE 3. ESTIMATED RESIDENTIAL POPULATION WITHIN A FOUR-MILE RADIUS OF CROWNMARK CORPORATION

Distance Ring (miles)	Town	Population per town	Total Population
0.00-0.25	Lincoln	0	
	Smithfield	5	5
0.25-0.50	Lincoln	69	
	Smithfield	0	69
0.50-1.00	Lincoln	119	
	Smithfield	91	210
1.00-2.00	Lincoln	897	
	Smithfield	194	
	N. Smithfield	22	1,113
2.00-3.00	Lincoln	1,859	
	Smithfield	1,662	
	N. Smithfield	455	
	Cumberland	244	4,220
3.00-4.00	Lincoln	3,536	
	Smithfield	2,580	
	North Providence	471	
	N. Smithfield	422	
	Cumberland	3,302	10,311
ΓΟΤΑL			15,928

Sources: Balogh, 1992f; Balogh, 1992k

within 4 miles of the facility obtains drinking water from public sources located greater than 4 miles from the facility.

One underground storage tank (UST) was removed from the Crownmark Corporation property in May 1989. This UST was inspected upon its removal, and was given a certificate of closure by the RI DEM. According to Michael Kiley of the E.R. Picket Company, the company that removed this UST, the tank contained no visual rust spots and the area of excavation did not appear to be contaminated. Two additional USTs exist on the Crownmark Corporation property. These USTs are used to store acetone and are tested regularly. There is no evidence that a release has occurred from these tanks.

TRCC recommends that this site receive a "Site Evaluation Accomplished" or "SEA" decision in CERCLIS due to a low Hazard Ranking System (HRS) score. This SEA phrase has replaced the "No Further Remedial Action Planned" or "NFRAP" designation.

To the best of the EPA's knowledge, Superfund has completed it's assessment at this site, and has determined that no further steps to list this site on the National Priorities List (NPL) will be taken.

A "Site Evaluation Accomplished" or "SEA" decision does not necessarily mean that there is no hazard associated with a given site; it means only that based upon available information, the location is not judged to be a potential NPL site. This "SEA" decision may be changed however, based upon additional information or other considerations which make a recommendation for listing appropriate at a later time.

Locations remain in the CERCLIS database after site evaluations have been completed. This provides EPA with a permanent record of past agency activities at that location. Inclusion of a specific location in the CERCLIS database carries no legal or regulatory consequences.

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